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AUTHOR	Moore, Royce
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ABSTRACT

This report reviews the combined efforts of vocational schools in Kanawha County and Putnam County and the West Virginia State Colleges Community College Component to develop and implement articulation agreements in selected occupational programs. It discusses experiences and views of others in West Virginia and other states that guided the project. Six approaches to student transition are summarized. The next section outlines both facilitative conditions that occurred prior to and continued during the project and potential barriers to the project's development of articulation agreements. In the next section focus is on actions taken to enhance negotiations and to facilitate the development of written agreements. Topics covered include awarding of credit and negotiation procedures. Essential elements of the articulation agreement are then discussed, including purpose, rationale, objectives, procedures, and signatures. (YLB)

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ARTICULATION BETWEEN KANAWHA COUNTY AND PUTNAM COUNTY VOCATIONAL SCHOOLS AND THE COMMUNITY COLLEGE COMPONENT AT WEST VIRGINIA STATE COLLEGE

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Prepared by:
Royce Moore
Director, Vocational Education Articulation Project
Community College Component
West Virginia State College
Institute, West Virginia 25112
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FOREWORD

The educational system in West Virginia, like that of many states, has experienced declining public support in recent years. A segment of education that seems to have escaped broad scale criticism has been vocational education as found in the vocational schools and the community colleges. Perhaps it is the close identity of vocational education with the preparation and upgrading of personnel to insure their employability and to enhance economic vitality that has largely kept it from being a target of taxpayers' rath. Yet, because of a lack of clear delineation in the scope of services provided by vocational schools and community colleges in many states, these two vital elements in the vocational education delivery system have been vulnerable to charges of duplication and unwillingness to engage in joint planning. Sometimes, it is the vocational schools and the community colleges that hurl the charges at each other. West Virginia has not been immune from such events.

Increasingly, it has become clear that vocational schools and community colleges have much to gain from cooperative ventures. The establishment of avenues of cooperation with the local county vocational schools has been a priority of the Community College Component at West Virginia State College since its inception. Among the various forms of cooperation, articulation arrangements that facilitate the movement of students between vocational schools and community colleges

have been viewed as a means to enhance the use of the resources each represents.

This report reviews the combined efforts of vocational schools in Kanawha County and Putnam County and the Community College Component to develop and implement articulation agreements in selected occupational programs. Although not the first such undertaking initiated in West Virginia, the results of this project have been extremely significant from the perspective of those of us who have been in the midst of the process from which the articulation agreements evolved. The foundation is now in place to permit additional articulation agreements and other forms of cooperation to be developed. The contents of the report should prove helpful to other vocational schools and community colleges seeking ways to work together to increase benefits to students and to the general public.

Andrew S. Korim, Provost
Community College Component
West Virginia State College

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The success of this project has been the result of hard work and invaluable contributions made by many competent and capable educators. Without their involvement, ideas, and sincere dedication, articulation agreements between the Community College Component at West Virginia State College and the Kanawha and Putnam County Schools would not have become a reality.

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Recognition is also due those persons who assisted in specific aspects of the negotiations on the many details essential to the development of agreements and their implementation. These include: Andrew Aheart, Phyllis Alderdice, Dean Barazi, Judith Beatty, Harriet Brown, Sue Cooperman, Ruth Edwards, Carol Eich, Charlotte Finney, Kendall France, John Fuller, Ann Huffman, Ernie Husson, Mary Igo, Calvin Isaacs, Lina Kelley, Jearl Koontz, Rosetta Lafleur, Larry Lambert, Sue Lang, Sherwin Lewis, Sidney Linville, Janet Martin, Neil McEachron, Mary Murphy, Ray Ortego, Chester Sargent, Sue Smith, Carl Thomas, Harold Walker, Robert L. Walters, Sally Witten, Carl Wright, Jim Zellers, and Sharon Zitzelsberger.

The chief executive officers of the education entities involved in the agreements provided the total commitment needed to conduct the activities under the project. These included: Robert Kittle, Superintendent, Kanawha County Schools; Kenneth Higginbotham, Superintendent, Putnam County Schools; and Harold McNeill, President, West Virginia State College.

Special recognition is given to Andrew S. Korim, Provost of the Community College Component at West Virginia State College. Mr. Korim provided the necessary expertise, seasoned leadership, and understanding which enabled the Director of the Articulation Project to complete the task. Rebecca Smith was helpful in various aspects of the project, especially in reviewing the agreements, and in giving keen attention to the editing of this report. Valuable assistance on a day-to-day basis was received from Diane Bonner, Carolyn Kirk, and Linda Smith, Secretaries to the Community College Component.

We acknowledge with deep gratitude the contributions of each of these persons and the many other persons whose cooperation made it possible to successfully complete this project.

Royce Moore, Director
Vocational Education Articulation Project
Community College Component
West Virginia State College

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INTRODUCTION

Prior to the initiation of the Vocational Education Articulation Project, the vocational schools of Kanawha County and Putnam County and the Community College Component at West Virginia State College had discussions on cooperative arrangements, but they moved rather slowly. There were virtually no opportunities for students in the vocational education at the associate degree level without encountering barriers. Programs offered by the Community College Component at West Virginia State College were not compatible with the vocational education programs of the county vocational schools. A large number of students were essentially discouraged from taking the postsecondary occupational programs offered by West Virginia State College. Joint vocational education planning by West Virginia State College, Kanawha County Schools, and Putnam County Schools was non-existent. This lack of joint planning resulted in gaps in educational services, and contributed to overlap and unnecessary duplication of services.

For the articulation project to be successful, the following factors had to be given priority attention:

1. Lack of understanding among many of the administrative staff, faculty, and vocational guidance and academic counseling staffs of the procedures by which articulation is accomplished.

2. Absence of a mechanism or organizational structure to facilitate joint planning, integration of curricula, shared vocational guidance, and the implementation of articulation agreements.
3. Presence of conditions that precluded the successful discussion of the subject of articulation.

To address the preconditions for the development of an atmosphere of cooperation, administrators of the three systems had several meetings. The primary condition of readiness of the administrators of the respective organizations to undertake joint activities was essentially satisfied prior to the formal initiation of the articulation project.

Several activities were conducted under the project to determine the state of the art of vocational education articulation in West Virginia and nationally, and to gain information helpful in the development of strategies to overcome barriers. Among these activities were:

1. Letters of inquiry mailed to schools, colleges, and agencies in other states.
2. Personal interviews with faculty and staff members of West Virginia State College.
3. Personal interviews with the superintendents of county school systems, directors of vocational education, principals of vocational schools, and vocational education instructors.
4. Personal interviews with personnel from the Community College Component at Fairmont State College where earlier work with

articulation agreements had been conducted.

5. Local workshops involving vocational school and college personnel.
6. Personal interviews with the officials of the West Virginia Department of Vocational Education and the West Virginia Board of Regents.
7. A workshop on articulation for secretarial science instructors from schools and colleges in West Virginia.
8. A statewide workshop including vocational school and college faculty and administrators, personnel from the State Department of Education and the Board of Regents, and a nationally recognized consultant.

The project resulted in the development and implementation of articulation agreements in selected occupational programs between selected county vocational schools and the Community College Component. These consisted of:

1. Electronics Technology Program - Elk Career Center, Kanawha County.
2. Secretarial Science Program - Garnet Adult Education Center, Kanawha County; Ben Franklin Career Technical Center, Kanawha County; Putnam Career Technical Center, Putnam County.
3. Hotel, Motel, and Institution Management Program - Ben Franklin Career Technical Center, Kanawha County

4. Dental Laboratory Technology - Putnam County Career Technical Center, Putnam County

This report discusses selected activities, observations, and other details pertinent to the process by which agreements between the cooperating organizations were developed and implemented.

PRIOR EXPERIENCES AND RELATED VIEWS

This project was guided by the experiences and views of others in West Virginia and in other states. Some of these antecedents are discussed in this section of the report.

Community College Plan for West Virginia

In the planning of the network of community colleges in West Virginia, the need for improved relations between vocational education schools and community colleges was recognized. The 1971 report, A Plan for Comprehensive Community College Education in West Virginia, by the West Virginia Board of Regents, presented recommendations that addressed the question of duplication of vocational education programs and the desirability of cooperative efforts with vocational schools. Selected recommendations in this report include:

1. Assign all postsecondary education including vocational-technical education to the Board of Regents.
2. Create a new State Board of Occupational Education to replace the State Board of Vocational Education.
3. Assign postsecondary programs in area vocational-technical centers or schools to community colleges operated by the Board of Regents.
4. Assign administration and budgeting of postsecondary schools to community colleges.

5. Develop contracts between area vocational-technical centers and comprehensive community colleges for services and programs to prevent the duplication of facilities and equipment.
6. Develop articulation policies which will insure easy transition from high schools and area vocational centers to the comprehensive community colleges (pp. VII-IX).

The fact that much of the Plan never became fully implemented in all likelihood contributed to the lack of progress in developing cooperative arrangements locally between community college operations and county vocational schools. Nevertheless, this document continues to serve as a basic guide for community colleges in West Virginia.

Prior Experiences in West Virginia

Prior articulation efforts in West Virginia have been limited to individual programs primarily at the secondary level. With funds from the West Virginia Bureau of Vocational, Technical, and Adult Education, the Community College Component at Fairmont State College developed articulation agreements with selected secondary vocational-technical schools. One of the major differences in the approach of the Community College Components at Fairmont State College and West Virginia State College was the level of vocational education to be targeted. Fairmont State's Community College Component elected to develop articulation agreements with the secondary vocational-technical programs in Marion, Monongalia, Taylor, Harrison, Preston, and Barbour Counties, whereas, West Virginia State's Community College Component

chose to develop articulation with the adult preparatory programs (postsecondary) in Kanawha and Putnam Counties. The logic of focusing on adult preparatory agreements rests on the assumption that adult vocational training would be better understood and accepted by the four-year faculty at West Virginia State College and that postsecondary articulation thus would meet with less resistance.

Southern West Virginia Community College and West Virginia Northern Community College have limited cooperative arrangements with vocational schools in their respective service areas. Parkersburg Community College may be characterized as being in an exploratory stage regarding vocational education articulation.

The National Picture

Nationally, articulation between vocational schools and community colleges has varied widely. A joint study of the American Association of Community and Junior Colleges and the American Vocational Association found that misunderstanding between community colleges and area vocational-technical centers is rooted in the arguments between Charles Prosser and John Dewey. These educators argued on the merits of education for specific job skills vs. education for broader lifetime adaptability to changing employment roles. Furthermore, the study revealed that vocational schools complained that community colleges require their students to enroll in unneeded courses in order to qualify for associate degrees. On the other hand, community colleges argued that students need more than entry-level job skills

to qualify for and advance in not one, but multiple occupational areas (Bushnell, 1978, p.5).

Menacher (1975, pp. 1,7) states that the main reasons for renewed interest in educational articulation are the recent pressures on college enrollments, first from too many students and then from too few students. Menacher also states that the reason for poor articulation in the educational system is historical in nature. Distance caused distrust, therefore the responsibility of education was placed within the individual states. Each state developed its own way of establishing the financial, curricula, and organizational structures.

A letter to all fifty states seeking information on articulation brought numerous responses. Some states replied with detail descriptions and copies of their articulation agreements. Other states replied with a simple "we don't have an articulation plan at the present." The one outstanding feature of the states that provided positive information was the extent to which state agencies were organized to foster articulation between vocational schools and community colleges. While most of the fifty states are involved in vocational education articulation of some type, a few states can mandate credit-carrying agreements because there is only one board governing vocational education and community colleges.

Kintzer (1976, pp. 1,5) reports that thirty-nine states have articulation guidelines or transfer policies. He points out that statewide articulation guidelines are necessary for several reasons:

1. To enable schools to make policies pertaining to admission, size of campus, division enrollments, length of time students may have to complete degrees, etc.;
2. To protect educational communities against internal and external self-interest groups by furnishing the entire state picture in well publicized guideline statements; and
3. To establish institutional role responsibilities to meet the needs of state constituencies.

As a result, Kintzer advocates the existence of a high level group to oversee and coordinate inter-institutional relationships in a given state.

Minnesota has established a statewide curriculum articulation center located in Maplewood, Minnesota, for the purpose of developing an industry-validated competency-based curriculum and designing a smooth transition from secondary to postsecondary programs. Articulation in Minnesota is divided into three phases. The first phase involves the study of a proposed curriculum that is current with industry's needs so that teachers throughout the State have a common understanding of what should be taught in a program. The second phase includes the development of tests which are used to assess student competencies. Criterion-referenced objectives and correlating performance tests are developed by instructors so that tests match the objectives and to provide uniformity throughout the state. The third phase involves the updating of articulated materials developed at the regional level (Fuehur, 1978, p.2).

Summary of Options

Based on the analysis of information from various sources, the transition arrangements for students from the county vocational schools to associate degree programs of the Community College Component could be enhanced by pursuing articulation alternatives. Options that seemed to be realistic considerations for this project included:

1. Test-out approach.
2. One-plus-one approach.
3. New program approach.
4. Program moritorium approach.
5. Secondary-postsecondary approach.
6. Advanced placement approach.

Each of the options is summarized below.

The test-out approach. In this case, a program may be offered at the county vocational school and the Community College Component in the same occupational area, but the two programs have dissimilarities, making curriculum articulation impossible. Students completing courses in the vocational school may request the opportunity to take a written and/or performance examination to demonstrate competencies related to a particular course. If the results of the examination are satisfactory, the student is awarded college credit. This method could be used by students who completed only a portion of a vocational school program before entering a program of the Community College Component.

The one-plus-one approach. In this option, the Community College Component evaluates the one-year programs of the county vocational

school to determine if the course curriculum provides the equivalent of one year of college preparation. If so, the second collegiate year consisting of additional technical courses, support courses and general education courses would be offered by the Community College Component. This, then, would meet the minimum requirements for an Associate in Applied Science Degree. It should be noted that the one-year program at the county vocational school must be of postsecondary quality. In effect, the requirements for an associate degree would then be met by taking one year of course work at each institution.

The new program approach. In this case, neither the county vocational schools nor the Community College Component has an existing program. As a result, a new program may be developed jointly by the county vocational schools and the Community College Component. Ideally, the program would be designed to insure that the instruction at the county vocational school and the Community College Component is integrated and compatible.

The program moratorium approach. In this alternative, the Community College Component discontinues enrolling students in a college program in order to create the conditions to allow articulation to be developed. This would be feasible only if the college program is weak and could be strengthened by the development of a new curriculum of the one-plus-one form. The Community College Component maintains its approval from the Board of Regents to award an associate in applied science degree, even though a moratorium is placed on a program.

The secondary-postsecondary approach. In this approach, the county vocational school offers a program that is at the secondary level, and the Community College Component offers a program which, by occupational focus, resembles the secondary school program. Under such circumstances, it may be possible for certain modules of instruction in the secondary programs of the county vocational schools to satisfy competency requirements developed in the program of the Community College Component. A special examination may be developed to allow the student to demonstrate the level of proficiency that he/she has acquired in the secondary school program. If the student demonstrates an adequate level of competency, college credit may be awarded to the student. This approach can obviously present difficult for some college personnel because of the concern that credit is awarded for secondary school instruction. The fact that the student demonstrates competencies serves to neutralize the concern.

The advanced placement approach. In this option, students may be enrolled in a secondary school program of the county vocational school, but because of the quality of the student's performance, arrangements may be made to permit the student to enroll in one or more courses of a similar program of the Community College Component. Such advanced placement would allow the student to accumulate credits leading to the Associate in Applied Science degree while still enrolled in a secondary program. The most frequent situation probably would be one in which the student enrolls in general education core courses required for Associate in Applied Science degree programs while pursuing technical coursework at a secondary vocational school.

UNDERLYING CONDITIONS AND ISSUES

The initial decision to undertake the development of articulation agreements between the Community College Component at West Virginia State College and the county vocational schools was motivated by a belief that a number of facilitative conditions already existed. Favorable events which had occurred prior to, and, continued during, the present undetaking include the following:

1. The persons in leadership positions in the Community College Component and in the county vocational schools were convinced that such agreements would be in the best interest of the students and the general public.
2. The participation of community college personnel in statewide vocational education meetings had increased significantly in recent years enhancing the relations locally between community college personnel and vocational school personnel.
3. The West Virginia Board of Regents and the West Virginia Board of Education had established channels of communication resulting in a cooperative agreement.
4. Staff members of the Chancellor's office of the West Virginia Board of Regents and the Bureau of Vocational, Technical, and Adult Education of the West Virginia Department of Education had developed working relationships expanding the financial participation of community colleges

in programs under the Vocational Education Act.

5. Articulation had been the subject of a grant received by the Community College Component at Fairmont State College from the Research Coordinating Unit of the Bureau of Vocational, Technical, and Adult Education, West Virginia Department of Education.

Although these conditions were considered as providing an enabling environment for the development of articulation arrangements between the county vocational schools and the Community College Component, a number of other conditions and issues tended to offset, to some degree, these positive factors. Early in the project, it appeared that an inventory of the conditions and issues that had precluded earlier articulation between the county vocational schools and the college would be beneficial. One such existing paradox was the fact that for a number of years there had been considerable discussion in local newspapers that the associate degree programs of the college duplicated programs of the county vocational schools, but there had been virtually no meaningful effort to develop articulation or other forms of cooperation that would address the situation.

The inventory of inhibiting conditions and issues resulted in an awareness that there existed numerous potential barriers. It appeared that many of these conditions rested on attitudes, behavioral patterns, and procedural differences. Some of the conditions may have been more perceived than real, but nevertheless, existed as potential barriers. Some conditions and issues were of a general nature, while

others were internal to the college or to the vocational schools. Early on, the project director concluded that these conditions and issues, unless addressed, would undermine current articulation efforts.

Potential Barriers - General

Those conditions and issues that were determined to exist as potential barriers to the project's development of articulation agreements, and in some cases, continue to inhibit such agreements in West Virginia include:

1. Limited prior experience in West Virginia with community colleges awarding credit and grades for vocational school training.
2. A minimal degree of professional interaction and cooperation between vocational instructors and college faculty.
3. The absence of operational parameters established by the West Virginia Board of Regents for the community college components, thereby creating an atmosphere of uncertainty regarding such matters as the award of college credit for vocational school course work.
4. The possession of different stated objectives, and in general, the utilization of different teaching methods, by vocational schools and community college components.
5. A disagreement between community college personnel and vocational educators as to the value of general education

coursework to the Associated in Applied Science degree programs.

6. An awareness that the major focus in vocational education in West Virginia has been directed at the secondary vocational student.
7. The belief by some vocational school personnel that the awarding of college credit for courses taken at the vocational school represents a concession by the college, rather than a recognition of the comparability of the training.
8. An expression of concern by vocational education that articulation agreements would encourage the vocational student to enroll directly in the associate degree programs of the community colleges, thus bypassing the vocational schools.
9. The vocational educator's accusation that counselors of the feeder high schools refer only disadvantaged students to the vocational education school, and reserve academically successful students for direct college entry, thereby enhancing the misconception that vocational education is mainly for the non-collegiate person.
10. A lack of agreement between vocational educators and community college personnel on the comparability of contact clock hours in the adult preparatory programs and college credit hours in associate degree programs.

11. The widely held belief among vocational educators that college instructors do not have the necessary "hands on" training to be effective instructors in preparing students with competencies needed by business and industry.
12. The occasional proposal by vocational educators that community colleges discontinue offering the first year of existing two-year associate degree programs, thereby forcing students to attend vocational schools to receive their first year of training.
13. The belief held by some vocational educators that their students can be successful without attending college after completing a program at the vocational school, thereby challenging the relevance of articulation agreements.

Potential Barriers - Specific to College Setting

Conditions and issues that were found to exist in the college setting and which potentially serve as barriers, included:

1. The practice of secondary vocational education students being denied credit at the collegiate level for courses taken to fulfill secondary vocational education requirements, even though the vocational curriculum is in some cases the same for secondary students as that for adult preparatory students.
2. The absence of a willingness by college professors to accept the comparability of courses taken at the vocational school.

3. The questioning by college instructors of the teaching credibility of vocational instructors holding selected degrees.
4. A lack of readiness by a significant number of the four-year college faculty and administrators to accept the Community College Component, thereby undermining the acceptance of articulation by vocational schools.
5. The lack of authority over instructors and the absence of clear budgetary control over expenditures for instruction by the Community College Component.
6. The advisement by some four-year college faculty of students who wish to enter a community college program, that the two-year associate degree programs are dead end programs.
7. The questioning by vocational school instructors as to the relevance of some courses resulting from the lack of utilization of advisory committees by many of the college's occupational programs.
8. A demonstration of reluctance by many of the department chairpersons to cooperate with the coordinators of the Community College Component on matters pertaining to course offerings and scheduling.
9. The existence of interpersonal conflicts in key departments, contributing to conditions that preclude a spirit of unity in negotiations with representatives of the county vocational schools.

10. The preference of some college faculty members to waive courses taken at the vocational school even though the content is comparable to courses offered by the college, thereby penalizing the student by not allowing credit to be awarded for equivalent work.
11. The absence of an established policy on how to convert contact hours used by vocational schools to semester hours used by the college.
12. An expression of concern by the college faculty that the Community College Component through articulation agreements and other forms of cooperation with non-collegiate organizations would lower academic standards.
13. The practice of hiring a college faculty member with a master's degree and no related work experience, while a basic requirement to be employed as a vocational instructor is seven year of related work experience.
14. The dependence of the Community College Component upon the college's four-year oriented office of student services for recruiting, counseling, and admission services and the office of academic affairs for registrar services, thereby requiring extensive internal negotiations in order to implement the articulation agreements equitably.
15. The lack of interest in faculty development related to articulation, contributing to the non-existence of an identifiable faculty for the Community College Component.

Potential Barriers - Specific to Vocational Schools

Those conditions and issues which were essentially internal to the vocational schools, and which were viewed as potential barriers to articulation include:

1. The absence of completion of requisite high school courses, such as Algebra, English, and Science, by many vocational students.
2. The reduced effectiveness of adult training attributable to the practice of enrolling adults and secondary school students in the same vocational programs.
3. The need to negotiate with a large number of persons, due to the fact that decisions regarding articulation are based on the opinion of the classroom instructor.
4. The opinion held by some vocational instructors that the college should lower its standards and accept the grade of D from the vocational school as adequate to receive college credit and to be given advance standing.
5. The failure of some vocational school officials, while verbally supporting the concept of articulation, to send adequate representation to critical meetings until major issues have been resolved.
6. The attempt by some representatives of the vocational schools to have work in non-related vocational courses treated as acceptable for award of college credit.

7. The established historical practice by vocational educators of not utilizing college faculty members on advisory committees.
8. The difficulty in determing whether selected vocational school programs are of collegiate quality, due to the fact that the curriculum for several vocational school programs in the county vocational schools is essentially the same for secondary and postsecondary (adult preparatory) students.
9. The argument by some principals of vocational schools that secondary school students should receive the same amount of college credit as adult preparatory students, while the directors of adult preparatory education argue that secondary students should continue training in the adult preparatory classes at the vocational school before receiving college credit for vocational coursework.
10. The diverse positions regarding vocational education by the respective vocational schools, which make it difficult to develop a standard articulation agreement.
11. A general disagreement among vocational school counselors and feeder high school counselors centering on vocational guidance philosophy and practice.
12. The existence of different procedures concerning adult vocational programs, within the two participating county school systems, which complicates utilization of uniform articulation procedures by the college.

13. The absence of procedures at the vocational schools for articulation between secondary vocational programs and adult preparatory vocational programs, even though some programs at the adult preparatory level duplicate secondary level programs.

REACHING AGREEMENT

The preceding section presented a seemingly endless number of conditions and issues that represented potential barriers. While many remain unresolved, in large part due to the inherent differences in mission between county vocational schools, community colleges, and baccalaureate institutions, there was substantial commitment on the part of all persons involved to expand educational options for the general public and to better serve the labor market needs of the Kanawha Valley. This commitment served to justify and support the negotiations on the subject of articulation. In fact, success with articulation arrangements seemed highly probable in selected program areas. This section will focus on actions taken to enhance negotiations and to facilitate the development of written agreements.

Initial Focus

Generally, college personnel have resisted accepting the reality that certain vocational education curriculums are the same for high school and adult preparatory students. However, it is true that in some limited cases that the scope of adult programs differ from those of secondary programs because of the prior experiences, age, and motivation of the students. Early in the project it was determined that it would be desirable to initially concentrate on the development of articulation agreements at the adult preparatory (postsecondary) level, because of the generally perceived compatibility of these programs with those at

the college. This determination was based on the assumption that articulation with the postsecondary vocational programs would result in less resistance from the four-year college personnel. Efforts to develop articulation agreements between secondary vocational programs and the college would be postponed to a later date.

Awarding of Credit

Since there existed no standard policies for transferring grades and credits from the vocational schools to the college, the practice of awarding "K" credits to vocational students who enter the college under the articulation agreements was utilized. "K" indicates that the student has received credit for certain coursework taken at the vocational school. However, the student does not receive college quality points or a letter grade for "K" credits. Quality points are determined only on coursework taken at the collegiate level.

Although the practice of awarding "K" credits does not provide vocational students with college grades or quality points, it does allow for the recognition of the comparability of the coursework. One of the most positive aspects of this method is the vocational student receives college credit for equivalent courses without having to pay for the courses twice. By any other method (CLEP, challenge examinations, test out), the student must pay a fee to the college to be awarded college credit.

Initially, a few college instructors were willing to offer a waiver for courses taken at the vocational school which were equivalent courses offered by the college. The Mathematics Department at

West Virginia State College was willing to offer a waiver for algebra and trigonometry taken by the electronics students at one of the vocational schools. However, it was felt that the waiver would penalize the electronics students because the number of courses and credit hours required for graduation would not change. After several weeks of negotiation, the concept of a waiver was withdrawn and agreement on credit equivalency was reached.

Negotiation Procedures

After assessing the conditions that characterized each of the programs offered by the respective county vocational schools and the Community College Component, three programs were identified as offering the greatest prospects for success. These programs were Electronics Technology, Secretarial Science, and Hotel, Restaurant and Institutional Management.

Key personnel with experience in the respective programs met in small groups over an extended period of time to seek consensus. The agenda for these meetings concentrated on the development of an atmosphere of cooperation to overcome the many years of conflict that had existed between the vocational school personnel and the college personnel. After several meetings, the potential benefits accruing from the proposed agreements were perceived by the instructors at all institutions to be advantageous both to the students and to the institutions.

Negotiations were limited primarily to course content, competencies, and credit equivalency. For each program, the agreed upon details were then incorporated into a written agreement. Although a standard agreement was utilized, variations in the amount of credit to be awarded

resulted due to the characteristics of individual programs.

In additional to the three programs already identified, a one-year Dental Laboratory Technology Program at the Putnam County Career Technical Center was viewed as also having potential for an articulation arrangement. In this case, the Community College Component did not have a similar program already in existence, but it was determined that the Putnam County program possessed the characteristics which favored the addition of a second year of collegiate coursework to be offered by the Community College Component. Upon completion, a student would receive an Associate in Applied Science Degree. Little or no opposition was voiced by either the personnel at the county vocational schools, the Community College Component, or West Virginia State College, largely because there did not exist a vested interest in an established program at West Virginia State College.

Based upon the analysis of the curriculum of each program at the college and the respective vocational schools, the following semester hours of credit would be awarded to each student who successfully completed the vocational school program:

Program	Semester Hours of Credit
Secretarial Science Program - Garnet Adult Education Center, Kanawha County	31
Ben Franklin Vocational Center, Kanawha County	28
Putnam County Vocational Center	32

Program	Semester Hours of Credit
Electronics Technology Program - Elk Career Center, Kanawha County	29
Dental Laboratory Technology Program Putnam County Career Center	30
Hotel,Motel Institution Management Program Ben Franklin Career Center, Kanawha County	7

In other program areas, college instructors rejected the training received by students at the vocational schools. In three distinct program areas, negotiations to explore articulation were initiated; however, problems surfaced, sometimes due to substantive issues, and at other times, due to irrelevant issues. In these cases, the differences were considered to be too extreme to resolve during the term of this project.

In one instance, an analysis of the curriculum was undermined by a college faculty member's obsession with the inequities in funding and concern about the source of funds county vocational schools have to purchase equipment. Further, there were instances where negotiations broke down due to perceived and/or real inadequacies in the college program. For example, negotiations proceeded well until the college instructor could not produce a syllabus for each course in the curriculum. Rather than allow such issues and incidents to affect the total course of events of the negotiations, activity in those affected program areas was suspended.

In summary, it appears that the vital element in successful negotiations on the subject of articulation is the comparing of the

curriculum being taught at each institution by instructors who are: (1) committed to articulation; (2) free of traditional prejudices; and (3) preoccupied with making decisions which are in the best interest of all students.

ESSENTIAL ELEMENTS OF THE AGREEMENT

The negotiations that took place between the college and the vocational schools were extremely complex and varied in terms of detail from program to program and school to school, making it essential to develop a written agreement for each program. However, a standard format was developed for all agreements.

The agreement that was established between the Community College Component at West Virginia State College and the Elk Career Center of Kanawha County was the initial agreement signed under this project. This agreement has served as a guide in the preparation of all successive articulation agreements (See Appendix A).

The information in the standard agreement was jointly developed in the negotiations between the representatives of the Community College Component and the vocational schools. Obviously, in each case, the details of the program differ including the number of credit hours and other aspects, but the format remains the same regardless of the program. Essential elements of the agreement are discussed below.

Purpose

This section explicitly spells out the purpose of the agreement. In particular, this section states that the purpose of the articulation arrangement is to provide expanded educational opportunities for the vocational students by offering students advanced placement in a

designated program such as the Electronics Program of the Community College Component at West Virginia State College. The intent of this section is to affirm the fact that a student from the vocational school must successfully complete the entire program at the vocational school before his/her request for advanced placement will be considered.

Rationale

The logic supporting the agreement is considered in this section. Specifically, the rationale of the agreement affirms the intent to eliminate unreasonable duplication at the Community College Component of coursework previously completed by the students at the vocational schools, thereby facilitating transition from a non-collegiate status to a collegiate one. In its endeavor to place students at the proper level, the Community College Component justifies its action on the basis of an analysis of the particular program at the county vocational school. Supporting this action is the recognition that several of the courses at each institution have been found to be comparable in objectives, methods, and techniques. Many of the same textbooks are used both in the vocational school and the college. On the basis of the rationale, the Community College Component is able to award college credit for relevant technical courses in a specifically designated program.

Objectives

In this section, the objectives of the agreement are outlined. Emphasis is placed on the production of a better-trained student capable

of entering the labor market with marketable skills, resulting from the cooperation between the county vocational schools and the Community College Component. The acceptable letter grade to be attained in courses at the vocational school in order to receive credit from the college is noted in this section. Also, the total number of college semester hours to be awarded for successful completion of the program at the vocational school is spelled out. The Community College Component obligates itself to enhance the student's education by requiring specific collegiate coursework. Upon satisfactory completion of the prescribed college work, the student will be awarded an associate degree in the prescribed program.

The objectives in all cases remain basically the same from program to program. Only the number of semester hours of college credit change, depending upon the assessment of the program and the comparability of the coursework to that offered by the college.

The agreement further guarantees that students from vocational schools who enter the Community College Component under an articulation agreement will be treated as any other students of West Virginia State College. The incoming vocational students are assured that they will not be excluded from the services and programs offered by West Virginia State College. Further, to ensure the relevance of the program addressed by the agreement, the college and vocational schools agree to jointly investigate the on-going training needs.

Procedures

Under procedures, the practice of utilizing the grades the student receives at the vocational school as the basis for advance placement is addressed. Also, the total number of credit hours that may be awarded are specified. Further, the fact that a vocational student must complete the entire program at the vocational school before he/she will be awarded college credit is noted. This provision serves as a precaution against the possibility of draining students from the vocational schools. Secondly, the provision permits the award of a total block of credits simplifying the work of the Registrar at the college.

As economic systems and technology change, the possibility that new courses may need to be added to the program is recognized. Neither party is prohibited from changing the curriculum.

The second item of this section insures that there is communication between the two institutions through the provision of a joint advisory committee for the program. This guarantees qualified persons the opportunity to make suggestions to improve the program. The third item of this section allows a student to enroll in both institutions simultaneously; however, the student is advised that he/she must complete the entire program at the vocational school before receiving college credit for that work.

Clarification of the conditions of dual enrollment was deemed necessary. The fourth item provides this clarification. The agreement states that a student may enroll in both institutions at the same time,

providing the admissions requirements of each institution are met. It is assumed that the college and the vocational schools may continue to follow existing admission procedures; however, it is hoped that the articulation arrangements will lead to a change in the admission procedures of each institution at a later date. Also discussed is each institution's requirement that the students pay the respective fees associated with the enrollment.

The fifth item in this section establishes standards for pre-requisites or basic courses which are considered foundations for advanced training. The sixth item guarantees that after successfully completing the prescribed courses at the college, and after meeting other criteria, the student who has been admitted to the college with advanced placement under the articulated program will receive an associate degree.

The follow-up of students to determine if their program of study has met the job entry level requirements of business and industry is covered in item seven. It is hoped that such research will provide the college and vocational schools with suggestions for the continuous upgrading of courses and programs. Item eight assigns the responsibility of carrying out the agreement to qualified individuals. Item nine provides an easy, non-legal method of discontinuing the articulation agreement should the agreement become detrimental to the welfare of the students or to either institution.

Signatures

The agreement provides for the signatures of those persons having the authority and responsibility for maintaining and upholding the agreement. Specifically, the Provost of the Community College Component, the President of West Virginia State College, the Superintendent of the County Schools and the Director of Vocational Education are required to affix their signatures to validate the agreement. The signing of the agreement serves as the terminal point in the negotiations.

GENERAL IMPACT

Many of the conditions that have served as barriers have been eliminated. In other cases, where the condition may not have been eliminated, the effect of the condition has been neutralized by counteraction.

The effectiveness of the articulation agreements will be measured by the extent to which students from the vocational schools will be able to make an easy transition from the vocational schools in Kanawha and Putnam Counties to the Community College Component.

The establishment of channels of communication between the county vocational schools and the Community College Component may be considered a breakthrough that will benefit students, employers, and the general public. It is hoped that the long term benefit of these cooperative agreements will be the existence of a pool of technical personnel equipped to support the economic vitality and growth of the businesses and industries of the Kanawha Valley. As a result of the accomplishments of this project, efforts are underway to develop articulation agreements in additional program areas.

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APPENDIX A

ARTICULATION AGREEMENT BETWEEN ELK CAREER CENTER OF KANAWHA COUNTY SCHOOLS AND THE COMMUNITY COLLEGE COMPONENT OF WEST VIRGINIA STATE COLLEGE

Agreement

This agreement is between the Community College Component of West Virginia State College and the Elk Career Center, Kanawha County Schools.

Program

Electronics Technology

Purpose

The purpose of the agreement is to maximize the opportunities for the students who successfully complete the electronics program at the Elk Career Center by offering advanced placement in the electronics program offered at the Community College Component of West Virginia State College.

Rationale

The Community College Component of West Virginia State College believes it has an obligation to place students at the proper educational level to enhance student success, to recognize individual differences or accomplishments, and to avoid duplication of efforts between the vocational-technical centers and the Community College Component.

This agreement is based on the fact that the Electronics Technology programs at the Elk Career Center and the Community College Component have common characteristics and interests. Both programs are concerned with the study of the basic principles of electronics and the application of these principles in electronic equipment. Considerable facility with the components, fabrication, and maintenance of electronic instruments is stressed. The increasing demand for more and better-trained technicians has caused a rapid expansion of programs to prepare para-professionals and skilled craftspersons. Even in traditional skill areas employers tend to favor the employee who has an associate in applied science degree. Realizing that further training and some general education preparation can give the student capabilities and deeper understanding of human relationships, the Elk Career Center and the Community College Component desire to cooperate to insure that educational opportunities are made available that will contribute to the diverse manpower needs of the area served by these institutions.

Objectives

This articulation agreement is designed to meet the training and employment needs of modern business and industry and to prepare students for successful entry into the electronics career.

The following objectives demonstrate recognition of the fundamental need of every individual to develop marketable skills and knowledge commensurate with today's critical employment needs:

1. To provide the electronic students with opportunities to perform and apply the knowledge and skills developed in the electronics program offered by the Elk Career Center of the Kanawha County Schools.

2. To provide college courses that will enhance the education of the electronics student who transfers to the Community College Component of West Virginia State College from the Elk Career Center.

3. To offer an articulated electronics program between the Community College Component and Elk Career Center whereby a graduate from the Elk Career Center with a grade of C or better in each course will obtain advanced placement in the electronics program at the Community College Component totalling twenty-nine (29) semester hours of credit.

4. To make all educational services and programs available to the transfer students as to any other student.

5. To jointly determine job availability for the graduates of both institutions by investigating and evaluating the employment and training needs of the employing agencies in the service area.

6. To provide competent and qualified instructors, counselors, staff members.

7. To provide modern physical facilities and equipment needed for quality programs of instruction.

8. To provide quality course content both in teaching and curriculum guides.

9. To endeavor to develop attitudes, understanding, abilities, and appreciation between the two institutions, which contribute to the success of the students and the articulation agreement.

10. To allow transferring students to challenge any course the student feels he/she can successfully pass.

Procedures

The Community College Component and the Elk Career Center will be assured that the philosophy and objectives serve the needs of the students through the following means:

1. The minimum program length accepted by the Community College Component from the Elk Career Center is 2700 clock hours. The Community College Component will award twenty-nine (29) hours of credit to the Elk Career Center student provided that the Elk Career student successfully completes the 2700 clock hour program with a C or better grade in each equivalent block of training. The Elk Career Center may elect to add additional courses to include specialization courses needed for the geographic area. Course offerings are indicated in the attached curriculum outline, however, courses may be taken in another order provided the prerequisite for each course prescribed is met.

2. The electronics program will have a joint advisory committee. The members of the committee will be selected from highly-qualified personnel in the area of electronics who are interested in both institutions. The electronics instructors from the Elk Career Center and the Community College Component will also be members of the Advisory Council.

3. A student may enroll in the electronics program at either institution provided space is available or at both institutions simultaneously.

4. Students enrolling simultaneously in the electronics programs of both institutions may meet the admission requirements of each institution and must formally be admitted by each.

5. The curriculum is designed so that each electronics student regardless of location takes the same basic courses. These basic courses provide the foundation upon which the articulation agreement is manifested and may be taught by instructors at either institution.

6. Upon successful completion of all course requirements the Associate in Applied Science Degree will be awarded.

7. Follow-up surveys of the graduates of the electronics program offered by the Community College Component will be conducted to determine the students' job success, opinions, and suggestions concerning the relationship between the articulated electronics program and their job efficiency.

8. Persons with direct responsibility to carry out the terms of this agreement are Mr. Andrew S. Korim, Provost, Community College Component of West Virginia State College and Mr. Dennis Davis, Assistant Superintendent for Vocational Education, Kanawha County Schools.

9. This agreement may be terminated by mutual consent.

Signatures

Dennis E. Davis, Assistant Superintendent for Vocational Education, Kanawha County Schools — Date: 5-19-80

Andrew S. Korim, Provost, Community College Component, West Virginia State College — Date: 4-10-80

Robert E. Kittle, Superintendent, Kanawha County Schools — Date: 5-19-80

Harold M. McNeill, President, West Virginia State College — Date:

SUGGESTED CURRICULUM BY SEMESTER

FIRST SEMESTER		SEMESTER HOURS	LOCATION
IT 100	Graphics	3	WVSC
IT 160	Electronics (D.C.)	4	*Elk
MATH 101	College Algebra	3	*Elk
ENG 101	Effective Communication	3	WVSC
GEC 101	Career Planning	2	WVSC

SECOND SEMESTER			
IT 161	Electronics (A.C.)	4	*Elk
IT 260	Solid State	4	*Elk
MATH 102	Trigonometry	3	*Elk
NS 101	Intro. to Natural Science	3	WVSC
HUMAN 101 or Social Science 101		3	WVSC

THIRD SEMESTER			
IT 264	Electronic Communication	4	*Elk
IT 270	Digital Electronics	4	*Elk
IT 271	Electronic Inst. Fundamentals	4	WVSC
PHYS 170	Elements of Photography	3	WVSC

FOURTH SEMESTER			
IT 272	Auto Control Systems	4	WVSC
BA 217	Business Management	3	WVSC
IT	Technical Elective	3	WVSC
IT	Technical Elective	3	WVSC
IT 275	Advanced Digital Circuits	3	*Elk

*Block courses taught at the Elk Career Center, Kanawha County Schools, which are equivalent and transferable to the Electronics Technology Program at the Community College Component, West Virginia State College.

The Community College Component of West Virginia State College will accept the following Blocks of Training from Elk Career Center and will issue semester hours of credit for satisfactory completion.

IT 160
Block II

Basic Electricity and D.C. Circuits
Unit A.
1. Introduction
2. Positive and Negative Charges
3. Atomic Structures
4. Changes in Motion
5. Resistance and Current
6. Ohm's Law — 30 clock hours

Block V

Unit A. D. C. Meters
1. Moving Coil Meters
2. Current Meters
3. Shunts and Multipliers
4. Voltmeters and Multimeters
5. Ohmmeters — 90 clock hours

IT 101 - AC Circuits

Unit A. Introduction
1. Magnetics
2. Motor and Generator Principles
3. Inductance
4. Series R-L Circuits
5. Parallel R-L Circuits
6. Capacitor Circuits: Series, Parallel and R-C. 103 hours

Unit B. Combination Circuits
1. RLC Series: And Parallel Circuits
2. Resonance: Series and Parallel
3. Complete RLC Circuits
4. Filters and Filter Networks
5. Interference Filters 220 hours

IT 260
Block VII

Solid State Electronics Concepts
Unit A. Basic Concepts
1. Physics of the P and N Type Crystal Lattice
2. Conduction and the P-N Junction
3. Silicon Diodes and their Applications
4. Transistor Action
5. Common Emitter Amplifiers
6. Bias Stabilization
7. Common Collector and Common Base Amplifiers
8. Field-Effect Transistor Amplifiers 120 hours

Unit B. Special Solid State Devices
1. SCR's
2. Triacs and Diacs
3. UJT's
4. PUT's
5. Zoner Diodes
6. Tunnel Diodes 30 hours

Block VIII

Vacuum Tube Fundamentals
1. Diodes
2. Thiodes
3. Tetrodes and Pentodes
4. Feedback Oscillation 30 hours

IT 270
Block VI

Fundamentals of Digital Electronics

Unit A. Basic Solid State Devices
1. Diodes and their Application
2. Transistors and their Application
3. Field Effect Transistors in Logic Circuits — 60 hours

Unit B. Gates
1. NAND Gates
2. NOR Gates
3. NOT Gates
4. Boolean Algebra Expressions
5. Truth Tables — 60 hours

Unit C. TTh and CMOS Devices
1. TTL Logic Family
2. 2400 Series IC's
3. Equivalent Gate Symbols — 60 hours

Unit D. Binary Numbers
1. Binary and Decimal Numbers Compared
2. DCD Numbers
3. Decoders and Seven Segment Displays — 20 hours

Unit E. Square Wave Generators
1. Astable and Monostable Multivibrators
2. Flip Flops — 20 hours

IT 264
Block I Second Year

Electronic Communications

I. Direct Current Fundamentals Review
1. Current, voltage and resistance
2. Direct current circuits
3. Magnetism — 30 hours

II. Alternating Current Fundamentals Review
1. Alternating current
2. Inductance and Transformers
3. Capacitance
4. Alternating current circuits
5. Resonance and Filters — 30 hours

III. Active Component Review
1. Vacuum tubes
2. Basic Solid State Devices — 15 hours

IV. Measuring Devices Review
1. D.C. Meters

2. A.C. Meters
3. Watt meters
4. Bridges
5. Oscilloscopes
6. Digital Meters — 30 hours

V. Circuits for Communication
1. Power supply
2. Oscillators
3. Audio-frequency amplifiers
4. Radio-frequency amplifiers — 90 hours

VI. Communication Systems
1. Basic Transmitters
2. Amplitude Modulation
3. Amplitude Modulation Receivers
4. Frequency Modulation
5. Antennas and Transmission Lines
6. Broadcast Stations
7. Television
8. Microwaves — 270 hours

VII. Energy Systems
1. Batteries
2. Motors and Generators
3. Solar Devices — 30 hours

VIII. Radar
1. Principles of Radar
2. Basic Radar Systems
3. Marine Radar
4. Basic Radar Maintenance — 30 hours

IX. FCC License Preparation
1. Radio Licenses and Laws: FCC
2. Voice Communications: FCC — 30 hours

IT 264 (cont.)
Block III - Second Year

Linear Integrated Circuit Applications

I. Telecommunications
1. Voice Operated Relay VOX Precomp.
2. Tunable Audio Oscillators
3. Low-frequency Mixing Amplifier
4. DSB Suppressed Canier Modulators
5. SSB Product Detector Demodulation
6. Pulse width modulator/Demodulator
7. Phase Locked Loops
8. Touch Tone Generator/Decoders — 120 hours

II. Industrial
1. Operational Amplifier Comparators
2. Process Control Loops
3. Transducers and Signal Conditioning — 75 hours

IT 275
Advanced Digital Circuit Design

1. Digital Math Review
2. Binary and other number systems
3. Systemic reduction of Boolear Expressions
4. Karnaugh mapping — 30 hours

II. Basic Logic Review
1. Logic families
2. Basic TTL and CMOS Gates
3. Flip-flops
4. Counters
5. Monostable Multivibrators
6. Shift registers
7. Binary coded decimal — 45 hours

III. Construction and Debugging IC Circuits
1. Wire wrapping
2. Printed circuits
3. Error Detection in Combinational Circuits
4. Error Detection in Sequential Circuits — 30 hours

IV. Exclusive OR Circuits
1. Circuit configuration
2. Comparators
3. Parity checkers
4. Code Converters — 15 hours

V. Arithmetic Circuits
1. Basic Adder
2. Subtraction
3. BCD Arithmetic
4. Arithmetic/Logic Counts
5. Binary Multiplication — 30 hours

VI. Multiplexers and Demultiplexers
1. Multiplexer Circuit Configuration
2. Demultiplexer Circuit Configuration
3. Practical Applications — 30 hours

VII. Core Memories
1. Memory concepts
2. Core operations
3. Core memory organization
4. Memory timing
5. Practical considerations — 30 hours

APPENDIX B - AGENDA

WORKSHOP ON VOCATIONAL EDUCATION ARTICULATION
Cedar Lakes Conference Center
Ripley, West Virginia

December 11, 1980

11:30 - 12:30	-	Registration
12:30 - 12:45	-	Welcome - Royce Moore, Coordinator of Articulation, Community College Component of West Virginia State College
12:45 - 1:15	-	Philosophy and Objectives - Mr. Andrew Korim, Provost of the Community College Component of West Virginia State College
1:15 - 2:15	-	The Findings of the AVA/AACJC Joint Study On Articulation and the Application to West Virginia - Dr. David S. Bushnell, Director, Center for Productivity Studies, Kogud School of Business Administration, American University
2:15 - 2:30	-	Questions/Answers
2:30 - 2:45	-	Break
2:45 - 3:15	-	Overcoming Barriers to Articulation - Mr. Michael Murphy, Assistant Bureau Chief, Bureau of Vocational, Technical and Adult Education, West Virginia Department of Education
3:15 - 3:45	-	The Statewide Challenge of Articulation - Dr. Donald Kinzy, Director for Community College Programs, West Virginia Board of Regents and Acting President of Southern West Virginia Community College
3:45 - 5:00	-	Implementation of Articulation A. Group I - Instruction, Curriculum, Credit B. Group II - Guidance, Counseling, Student Records C. Group III - Administration, Sharing Facilities
5:00 - 5:15	-	Announcements - Royce Moore
5:15	-	Dinner
7:00 - 9:00	-	Work Session - Groups I, II, III

December 12, 1980

7:15 - 8:00	-	Breakfast
8:15 - 8:30	-	Cooperation Between Kanawha County Schools and the Community College Component of West Virginia State College: Case Study. Mr. Dennis Davis, Assistant Superintendent of Vocational and Community Education, Kanawha County
8:30 - 8:45	-	Articulation Problems and Solutions to Problems Encountered Between Vocational and Community College Education. Dr. Adam Sponaugle, Director of Program Services, State Department of Education
8:45 - 9:00	-	Overview of Articulation at West Virginia Northern Community College, Dr. Richard D. Sambuco, Chairperson, Applied Technologies Division, West Virginia Northern Community College.

December 12, 1980 (continued)

9:00 - 10:30	-	Articulation Agreements: A. Determining Programs to Articulate B. Comparing Curriculums C. Awarding Credit
10:30 - 10:45	-	Break
10:45 - 11:30	-	Writing Draft Articulation Agreements (Groups divided by similar programs)
11:30 - 12:00	-	Report by Each School on Progress Achieved
12:00 - 12:15	-	Evaluation of Workshop
12:15	-	Lunch